

REMARKS

In the Final Office Action, the disclosure was objected to and claims 1-4, 11-15, and 20-23 were rejected. By this paper, Applicant has amended the specification, and no new matter has been introduced by this amendment. Claims 1-4, 11-15 and 20-23 remain pending in the present application and are believed to be in condition for allowance. In view of the foregoing amendments and the following remarks, Applicant respectfully requests reconsideration and allowance of all pending claims.

Objection to the Specification

In the Final Office Action, the specification was objected to for the allegedly improper absence of the terms "interface circuit" and "interface." It was not asserted that these terms lack support from or in the detailed description, but rather the specification was merely objected for failing to expressly include these terms, which were originally presented in the claims. Although Applicant does not necessarily agree with the Examiner's objection, Applicant has amended the specification as set forth above to expedite prosecution of the present application. In view of this amendment, Applicant respectfully requests the Examiner withdraw the objection to the specification.

Claim Rejections under 35 U.S.C. § 103(a)

In the Final Office Action, claims 1-4 were rejected under 35 U.S.C. § 103(a) as obvious in view of the Pacileo reference (U.S. Patent No. 5,185,513; hereinafter "Pacileo") and in further view of the Gipp et al. reference (U.S. Patent No. 5,449,234; hereinafter "Gipp") or the Muller reference (U.S. Patent No. 3,667,476; hereinafter "Muller"). Also claims 11-15 and 20-23 were rejected under 35 U.S.C. § 103(a) as obvious in view of the Ohmori et al. reference (U.S. Patent No. 4,419,755) and in further view of Gipp or Muller. Applicant respectfully traverses these rejections, which are discussed in detail below.

Legal Precedent

First, Applicant respectfully submits that the burden of establishing a *prima facie* case of obviousness falls on the Examiner. *Ex parte Wolters and Kuypers*, 214 U.S.P.Q. 735 (PTO Bd. App. 1979). To establish a *prima facie* case, the Examiner must not only show that the combination or modification includes *all* of the claimed elements, but also a convincing line of reason as to why one of ordinary skill in the art would have found the claimed invention to have been obvious in light of the teachings of the references. *See Ex parte Clapp*, 227 U.S.P.Q. 972 (B.P.A.I. 1985). Moreover, obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention absent some teaching or suggestion supporting the combination or modification. *See ACS Hospital Systems, Inc. v. Montefiore Hospital*, 221 U.S.P.Q. 929, 933 (Fed. Cir. 1984). Indeed, the mere fact that references *can* be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *See In re Mills*, 16 U.S.P.Q.2d. 1430 (Fed. Cir. 1990).

Furthermore, the Federal Circuit has consistently held that a reference that teaches away from the claimed invention cannot serve to create a *prima facie* case of obviousness. *See In re Gurley*, 31 U.S.P.Q. 2d 1130, 1132 (Fed. Cir. 1994) (noting that it is a useful general rule that “a reference that ‘teaches away’ cannot serve to create a *prima facie* case of obviousness”). Along this vein, an obviousness analysis requires that a reference must be considered in its entirety, including portions that would *lead away* from the claimed invention. *See* M.P.E.P. § 2142.02 (8th ed.; Rev. 02). Indeed, “[i]t is impermissible within the framework of section 103 to pick and choose from any one reference only so much of it that will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art.” *In re Wesslau*, 147 U.S.P.Q. 391, 393 (C.C.P.A. 1965).

Additionally, in presenting a Section 103 rejection, the Examiner must provide *objective evidence*, rather than subjective belief and unknown authority, of the requisite motivation or suggestion to combine or modify the cited references. *See In re Lee*, 61 U.S.P.Q.2d. 1430 (Fed.

Cir. 2002). "Broad conclusory statements standing alone are not 'evidence'." *In re Kotzab*, 55 U.S.P.Q. 2d 1314, 1317 (Fed. Cir. 2000).

Moreover, when prior art references require a selected combination or modification to render obvious a subsequent invention, there must be some reason for the combination or modification *other than the hindsight* gained from the invention itself, i.e., something in the prior art as a whole must suggest the desirability, and thus the obviousness, of making the combination or modification. *See Uniroyal Inc. v. Rudkin-Wiley Corp.*, 837 F.2d 1044, 5 U.S.P.Q.2d 1434 (Fed. Cir. 1988). Indeed, the Federal Circuit has warned that the Examiner must not "fall victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against its teacher." *See In re Dembiczak* 50 U.S.P.Q. 2d 52 (Fed. Cir.1999). (quoting *W.L. Gore & Assoc., Inc. v. Garlock, Inc.*, 220 U.S.P.Q. 303, 313 (Fed. Cir.1983)). Moreover, avoiding hindsight reconstruction is especially important regarding less technologically complex inventions, where the very ease which the invention can be understood may prompt one to employ such hindsight. *See id.*

As discussed above, in determining the differences between the prior art and the claims, the question under Section 103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious. *See Stratoflex, Inc. v. Aeroquip Corp.*, 218 U.S.P.Q. 871 (Fed. Cir. 1983). Thus, the Examiner must not look at each element of a claim individually, but rather the claims should be viewed as a tapestry comprising the recited elements. Thus, "it is impermissible, however, to simply engage in a hindsight reconstruction of the claimed invention, *using the applicant's structure as a template* and selecting elements from references to fill the gaps." *In re Gorman*, 18 U.S.P.Q. 2d 1885, 1888 (Fed. Cir. 1991) (emphasis added). Simply put, what may seem logical to combine in retrospect and after viewing an applicant's invention is not obvious unless the cited references, without benefit of this hindsight, teach what is claimed. *See In re Zurko*, 42 U.S.P.Q.2d 1476, 1479 (stating "[w]hile in retrospect, looking at applicants' invention, it might seem logical to

perform a repeat-back in the UNIX system over a trusted line, neither UNIX not FILER2 teaches communications with the user of a trusted pathway,” as is recited in the claim in question). In summary, a valid Section 103 rejection must articulate and support with objective evidence a line of reasoning that establishes why one of ordinary skill in the art, with no knowledge of an applicant’s invention, would make the combination presented in the manner claimed. *See In re Kotzab*, 55 U.S.P.Q. at 1318 (Fed. Cir. 2000).

With the foregoing legal precedent in mind, Applicant respectfully asserts that the pending claims are not obvious in view of the cited references, whether taken alone or together.

First Rejection Under Section 103

In the Final Office Action, claims 1-4 were rejected under U.S.C. § 103(a) as obvious in view of Pacileo and in further view of Gipp or Muller. Specifically, in rejecting these claims the following was presented:

Pacileo shows a controller for a heating system including a control circuit 10, a temperature sensor 14 and an interface circuit 16 to couple the temperature feedback device to the control device to control the power supply 22 (see Figures 1 and 2 and col. 4, line 22-col. 6, line 25). Therefore, Pacileo shows every feature and structure as claimed except for the use of a capacitor to connected the conductors to ground. Gipp shows a temperature sensing system with a thermistor 502. It teaches to ground a terminal 706 of the thermistor 502 through a capacitor 708 to reduce interferences and noises (see Figures 7 and 8 and col. 6, line 34—col. 7, line 38). Muller also shows a temperature sensing system using a temperature measuring circuit 38 with a part Q5 thereof connected to ground through a capacitor C4 to filter out unwanted noise (see Figure 1 and col. 6, lines 48- 65). It would have been obvious to an ordinary skill in the art [*sic*] to modify Pacileo to ground the terminals of the thermocouple to ground through a capacitor in order to reduce electrical noises for a more accurate temperature feedback control view of the teaching of Gipp or Muller.

Applicant, however, respectfully asserts that a *prima facie* case of obviousness has not been established for at least the following three reasons. First, Applicant respectfully submits that the Pacileo-Gipp-Muller reference combination does not disclose all of the features recited in claims 1-4. Secondly, Applicant respectfully asserts that a sufficient motivation for combination has not *been articulated and objectively supported*, so as to establish a *prima facie* case of obviousness. Thirdly, Applicant respectfully submits that impermissible hindsight reconstruction has been employed to reject the pending claims.

A. The cited references fail to disclose all of the claimed elements.

By way of example, Applicant respectfully submits that the cited reference combination does not disclose a “control circuit *operable to control* the application of power from a power source to an *induction heating cable*,” as is recited in independent claim 1. (Emphasis added.) Instead, Pacileo—which is the reference the Examiner relies on for teachings related to the claimed control circuit (*see* Final Office Action mailed June 16, 2005, pp. 2-3) – discloses a power supply 22 that outputs a *direct current (dc)* power, thus lacking a control circuit capable of controlling power to an *induction heating cable*. As is appreciated by those of ordinary skill in the art, induction heating devices operate through the application of an *alternating current (ac)* electrical signal to a conductor, the ac signal, in turn, producing a varying magnetic flux. *See* Application, p.1, ll. 15-17. Electrical currents resultantly induced within a work piece *by the varying magnetic flux* cause the work piece to increase in temperature (i.e., heat up). *See id.* at p. 1, ll. 18-22. By contrast, Pacileo discloses a device in which an inputted alternating current is *rectified into a dc current*, which, in turn, is then applied to a ceramic heating pad 32. *See* Pacileo, col. 4, ll. 35-41. Indeed, the ceramic heating pad 32 of Pacileo operates by resistive or $I^2 R$ heating, which benefits from a constant and unoscillating power supply, such as is provided by a dc power source. Thus, Applicant respectfully submits that the power supply 22 as is described by Pacileo is not operable to control power to an induction heating cable, as routing dc power through an induction heating cable would not produce a varying flux that, in turn, induces

currents within the work piece. Therefore, Applicant respectfully submits that Pacileo does not disclose a control circuit as is recited in independent claim 1.

B. An appropriate motivation for combination has not been articulated.

Additionally, even if, *arguendo*, it is said that the cited reference combination discloses all of the recited features, Applicant respectfully asserts that a *prima facie* case of obviousness still has not been established, because an objectively supported motivation for combination has not been articulated. As is quoted in context above, the Examiner's articulated motivation for combining Pacileo with either Muller or Gipp is as follows: "[i]t would have been obvious to an ordinary skill in the art [*sic*] to modify Pacileo to ground the terminals of the thermocouple to ground through a capacitor in order to reduce electrical noises for a more accurate temperature feedback control system, in view of the teaching of Gipp or Muller." See Final Office Action mailed June 16, 2005, p. 3. Respectfully, however, Applicant submits that the Examiner's articulated motivation does not point to any *evidence* for the combination. That is, the Examiner's articulated motivation only relates to what *could have been* done. Indeed, nothing in either Gipp or Muller, Applicants respectfully submit, suggests beneficial application with an induction device, let alone a control circuit for an *induction heating cable* as is recited in the pending claims. In fact, the *direct current* power source employed in Pacileo *teaches away* from an induction device, which requires an antithetical alternating current power source presenting oscillations in current to produce a *varying magnetic field*.

C. The rejection employs impermissible hindsight reconstruction.

Additionally, Applicant respectfully submits that this lack of an objectively evidenced motivation for combination demonstrates that impermissible hindsight reconstruction has been employed to reach the pending claims. That is, it is only through the use of Applicant's teachings does the Examiner find the link between Pacileo, Muller, and Gipp to reach the instant claims. Indeed, only by using Applicant's disclosure as a road map does the Examiner find

obvious the incorporation of an appropriately coupled temperature feedback device and control circuit operable for an induction heating cable, as are recited in independent claim 1.

D. Conclusion

Therefore, Applicant respectfully submits that a *prima facie* case of obviousness in regard to independent claim 1 and its respective dependent claims 2-4 has not been established. With the foregoing in mind, Applicant respectfully requests reconsideration and allowance of claims 1-4.

Second Rejection Under Section 103

In the Final Office Action, claims 11-15 and 20-23 were rejected under U.S.C. § 103(a) as obvious in view of Ohmori, and in further view of Gipp or Muller. Specifically, in rejecting these claims, the following was presented:

Ohmori shows an electronic device, comprising: an electronic circuit having an inductor (heating induction coil 8); and an interface (22) operable to electrically couple a signal representative of temperature (from detector 31) resulting from heating by the inductor (8) from a temperature feedback device to the electronic circuit (see the Figure and col. 2, line 55 — col. 3, line 55). Therefore, Ohmori shows every feature and structure as claimed except for the use of a capacitor to connected the conductors of the temperature sensor to the interface to ground. Gipp shows a temperature sensing system with a thermistor 502. It teaches to ground a terminal 706 of the thermistor 502 through a capacitor 708 to reduce interferences and noises (see Figures 7 and 8 and col. 6, line 34—cal. 7, line 38). Muller also shows a temperature sensing system using a temperature measuring circuit 38 with a part Q5 thereof connected to ground through a capacitor C4 to filter out unwanted noise (see Figure 1 and col. 6, lines 48- 65). It would have been obvious to an ordinary skill in the art [*sic*] to modify Ohmori to ground the terminals of the thermocouple to ground through a capacitor in order to reduce electrical noises for a more accurate temperature feedback control system, in view of the teaching[s] of Gipp or Muller.

Applicant, however, respectfully asserts that claims 11-15 and 20-23 are not obvious in view of the cited references, whether taken alone or together. As discussed in further detail below, Applicant respectfully submits that a *prima facie* case of obviousness with respect to independent claim 11, and its respective dependent claims 12-15, as well as independent claim 20, and its respective dependant claims 21-23, has not been presented. Applicant addresses in turn below independent claims 11 and 15.

A. Independent Claim 11 and The Claims Depending Therefrom

In regard to independent claim 11, Applicant respectfully asserts that the cited reference combination does not disclose all of the features recited therein and, thus, does not support a *prima facie* case against this claim. By way of example, Applicant respectfully submits that the cited reference combination does not disclose “a temperature feedback device...*disposed within a magnetic field* produced by the inductor,” as is recited in independent claim 11. (Emphasis added). Instead, Ohmori—which is the reference relied on by the Examiner for disclosure related to an inductor (*see* Final Office Action mailed June 16, 2005, p. 3)-- discloses a temperature sensor 31 that is *distant from* the induction coil 8 and, thus, *outside any magnetic field* produced by this coil 8. *See* Ohmori, FIG. 1, col. 2, ll. 63-66. Indeed, as is best illustrated in FIG. 1 of Ohmori, the magnetic field producing induction coil 8 is located approximate to a U-shaped channel, while the temperature sensor 31 would be located in the molten metal 2 disposed within the furnace 1 at a location *wholly opposite* the location of the induction coil 8. Thus, in the device of Ohmori, in no way is the temperature sensor 31 located within a magnetic field of the inductor coil 8. Furthermore, Applicants respectfully submit neither Gipp nor Muller is capable of obviating this deficiency. Indeed, Gipp relates to a temperature sensor located in an engine compartment, without any relation to an inductor. *See* Gipp, col. 1, ll. 5-10; col. 8, ll. 18-25. Moreover, Muller relates to a temperature apparatus for monitoring and controlling a living organism’s environmental temperature, with no semblance of an inductor disclosed. *See* Muller, Abstract.

Thus, Applicant respectfully asserts that the cited reference combination does not disclose all of the features recited in independent claim 11 and its respective dependent claims 12-15 and, thus, does not establish a *prima facie* case of obviousness with respect to these claims. With the foregoing in mind, Applicant respectfully request reconsideration and allowance of claims 11-15.

B. Independent Claim 20 and the Claims Depending Therefrom

In regard to independent claim 20 and its respective dependent claims 21-23, Applicants respectfully submit that a *prima facie* case of obviousness has not been established, because an objectively supported motivation for combination has not been articulated and because impermissible hindsight reconstruction has been employed.

Even assuming, *arguendo*, that the cited reference combination discloses all of recited claim features, Applicant respectfully submits that a sufficient motivation to combine the cited reference to reach the pending claims has not been presented. As quoted in context above, the Examiner's motivation for combining Ohmori with either Gipp or Muller is as follows: "[i]t would have been obvious to an ordinary skill in the art [*sic*] to modify Ohmori to ground the terminals of the thermocouple to ground through a capacitor in order to reduce electrical noises for a more accurate temperature feedback control system, in view of the teaching[s] of Gipp or Muller." See Final Office Action mailed June 16, 2005, p. 4. However, Applicant respectfully submits that this motivation is not *objectively supported*. For example, nothing in Ohmori suggests that noise is a problem or that mitigation of noise is a concern. Indeed, the Examiner motivation, Applicant respectfully submits, only articulates what could have been done, and not an objectively supported motivation for as to why such noise reduction would be used for an induction heating device, as is recited in the pending claims.

Additionally, as the Examiner has illustrated with the cited patents, induction heating has been known in the art and employed since at least 1983. See Ohmori et al. In addition, grounding a conductor through a capacitor to reduce signal noise has been known in the art and

employed since at least 1972. *See Muller*. Consequently, both induction heating and the claimed noise reduction method were known to concurrently exist for approximately *twenty years* prior to the filing of the present patent application. However, Appellant is unaware of a single suggestion or teaching in the prior art during this twenty-odd year period supporting the Examiner's proposed combination. Though the Examiner argues that it would be obvious to the hypothetical "one of ordinary skill in the art," the Examiner has not found objective evidence of even one actual person who thought to ground conductors through a capacitor in an induction heating feedback system in the twenty years prior to the filing of the present application. Indeed, it is only through the use of impermissible hindsight reconstruction is the motivation for combining the cited reference to reach the pending claims found.

Conclusion

In view of the remarks set forth above, Applicant respectfully requests allowance of claims 1-4, 11-15 and 20-23. If the Examiner believes that a telephonic interview will help speed this application toward issuance, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,



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